Register Number: ……

B.TECH. DEGREE EXAMINATIONS: NOV / DEC 2010

Fifth Semester

TEXTILE TECHNOLOGY

U07TT501: Process & Quality Control in Yarn Manufacture

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. The statistical technique used to compare the two mean values is

   a)'t' test b)' F' test c) ANOVA d) Chi-square test

2. Non-aligned staple diagram measured by HVI is

   a) Fibrogram b) Fibrograph c) Digital fibrograph d) Baer sorter

3. Honey dew content in cotton will

   a) Increase the production b) Increase the nep level in yarn

   c) Improve the evenness of the yarn d) Increase the yarn realization

4. For the calculation of yarn realization _____ wastes are taken into consideration.

   a) Process b) Product c) Usable d) Non-usable

5. The number of fibers in the cross section of comber lap should be less than _____ for better comber performance.

   a) 2, 00, 000 b) 3,00,000 c) 4,00,000 d) 5,00,000

6. The cop rejection in winding should be less than _____ to reduce hard waste in winding.

   a) < 2% b) < 5% c) < 10% d) < 20%

7. Over parallelization in sliver can be reduced by

   (i) Less draw frame passage (ii) Humidity control (iii) Higher draft (iv) Finer hanks

   a) i & iii are correct b) ii & iv are correct c) i & ii are correct d) ii & iii are correct

8. More even yarn can be produced by

   a) Increasing twist in the yarn b) finer fibers c) Coarser fibers d) shorter fibers

9. The floating fibers in the drafting zones leads to

   a) Random variation in yarn b) Periodic variation in yarn

   c) Drafting waves in yarn d) Twist variation in yarn

10. The operative hours required to produce 100 kg of yarn is given as

    a) HOK b) OHS c) OHSAM d) SH

PART B (10 x 2 = 20 Marks)

11. Distinguish the term quality control and quality assurance.
12. What do you mean by sampling error?
13. What is Fiber Quality Index?
14. List any four reasons for high nep generation in blow room.
15. What is fractionating efficiency?
16. Give the reasons for invisible losses during yarn manufacturing.
17. Define thick place and nep in yarn as per USTER.
18. State the reasons for drafting waves in yarn.
19. Calculate the GPS for a shift of 8 hrs in 60s carded count having the spindle speed of 18000 rpm, TPI of 30 and efficiency of 90%.
20. What do you understand by the term OHS?

PART C (5 x 14 = 70 Marks)

21. a) (i) What are the key variables to be considered while identifying process and product characteristics for process control? (4)

(ii) Give the process parameters and quality parameters to be considered in blow room, card, draw frame, speed frame and ring frame. (10)

(OR)

b) (i) Give the application of 't' test and 'F' test in analyzing strength and twist variability.(7)

(ii) Explain different types of control charts used in Statistical Quality Control (7)

22. a) (i) List the various fiber characteristics measured by HVI. (4)

(ii) Explain the application of Fiber quality index and Spinning consistency index in fiber selection. (10)

(OR)

b) (i) Discuss in detail about the control of nep generation in blow room. (6)

(ii) Explain the influences of various process parameters for improving nep removal efficiency in carding and comber. (8)

23. a) (i) What do you mean by yarn realization? Give the norms for waste in different departments. (4)

(ii) With neat sketch, explain determination of trash content in Shirley trash analyzer. (6)

(iii) If the first cleaning machine removes 40% of the trash and the second cleaning machine removes 50% of the remaining trash, trash content in raw cotton is 3%. Calculate overall cleaning efficiency? (4)

(OR)

b) (i) Explain the influence of machine and process parameters in optimization of card and comber waste and give the norms for the same. (10)

(ii) How to control the hard waste in cone winding? (4)

24. a) (i) What is the relationship between Unevenness and CV%? (2)

(ii) Briefly explain the influence of draw frame and speed frame on count variation and list out reasons for between and With-in bobbin count variation. (12)

(OR)

b) (i) Distinguish Random variation and Periodic variation. (4)

(ii) Explain in detail about various yarn faults, their causes and remedies. (10)

25. a) (i) Describe various productivity indices in spinning. (8)

(ii) Explain the application of on-line quality monitoring systems in ring frame. (6)

(OR)

b) (i) Explain the influence of maintenance and humidity in ring frame productivity and quality. (7)

(ii) How will you control the end breakage in ring frame? (7)

****